

SEQUENCE LISTING

<110> Chiorini, John
Kotin, Robert M.
Safer, Brian

<120> AAV5 VECTOR AND USES THEREOF

<130> 14014.0323U3

<150> PCT/US99/11958

<151> 1999-05-28

<150> 60/087,029

<151> 1998-05-28

<160> 23

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 4652

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 1

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gcgaacgcga	caggggggag	agtgccacac	tctcaagcaa	gggggttttg	taagcagtga	180
tgtcataatg	atgtaatgct	tattgtcacg	cgatagttaa	tgattaacag	tcatgtgatg	240
tgttttatcc	aataggaaga	aagcgcgcgt	atgagttctc	gcgagacttc	cgggggtataa	300
aagaccgagt	gaacgagccc	gccgccattc	tttgctctgg	actgctagag	gaccctcgct	360
gccatggcta	ccttctatga	agtcattggt	cgcgtcccat	ttgacgtgga	ggaacatctg	420
cctggaattt	ctgacagcct	tgtggactgg	gtaactggtc	aaatttgga	gctgcctcca	480
gagtcagatt	taaatttgac	tctggttgaa	cagcctcagt	tgacggtggc	tgatagaatt	540
cgcgcgctgt	tcctgtatga	gtggaacaaa	ttttccaagc	aggagtccaa	attctttgtg	600
cagtttgaaa	agggatctga	atattttcat	ctgcacacgc	ttgtggagac	ctccggcatc	660
tcttccatgg	tcctcggccg	ctacgtgagt	cagattcgcg	cccagctggt	gaaagtggtc	720
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ggagccaata	aggtggtgga	ttctgggtat	attcccgcct	acctgctgcc	gaagggtccaa	840
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gaggagcgca	aacggctcgt	cgcgcagttt	ctggcagaat	cctcgagcgc	ctcgaggag	960
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tacatggcgc	tcgtcaactg	gctcgtggag	cacggcatca	cttccgagaa	gcagtggatc	1080
caggaaaatc	aggagagcta	cctctccttc	aactccaccg	gcaactctcg	gagccagatc	1140

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Sub
B1

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ttcaacaaga	ggaacaccgt	ctggctctac	ggaccgcga	cgaccggcaa	gaccaacatc	1380
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aaatgtaaat	cctctgttca	aattgattct	acccctgtca	ttgtaacttc	caatacaaac	1620
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cgcatgttca	aatttgaact	gactaagcgg	ctcccgccag	atcttggaac	gattactaag	1740
caggaagtca	aggacttttt	tgcttgggca	aaggtcaatc	aggtgccggg	gactcacgag	1800
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ctgggtgacg	tcaccaatac	tagctataaa	agtctggaga	agcgggccag	gctctcattt	1920
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gccacaacc	tcacctccac	cgtccaagtg	tttacggacg	acgactacca	gctgccctac	3240
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cccgaaata	tcaccagctt	ctcggacgtg	ccgctcagca	gcttcatcac	ccagtacagc	4200

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accgggcagg tcaccgtgga gatggagtgg gagctcaaga aggaaaactc caagaggtgg 4260
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<210> 2

<211> 390

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 2

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Met Ala Leu Val Asn Trp Leu Val Glu His Gly Ile Thr Ser Glu Lys
1          5          10          15
Gln Trp Ile Gln Glu Asn Gln Glu Ser Tyr Leu Ser Phe Asn Ser Thr
20          25          30
Gly Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Thr Lys
35          40          45
Ile Met Ser Leu Thr Lys Ser Ala Val Asp Tyr Leu Val Gly Ser Ser
50          55          60
Val Pro Glu Asp Ile Ser Lys Asn Arg Ile Trp Gln Ile Phe Glu Met
65          70          75          80
Asn Gly Tyr Asp Pro Ala Tyr Ala Gly Ser Ile Leu Tyr Gly Trp Cys
85          90          95
Gln Arg Ser Phe Asn Lys Arg Asn Thr Val Trp Leu Tyr Gly Pro Ala
100         105         110
Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Thr Val Pro
115         120         125
Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
130         135         140
Cys Val Asp Lys Met Leu Ile Trp Trp Glu Glu Gly Lys Met Thr Asn
145         150         155         160
Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
165         170         175
Val Asp Gln Lys Cys Lys Ser Ser Val Gln Ile Asp Ser Thr Pro Val
180         185         190
Ile Val Thr Ser Asn Thr Asn Met Cys Val Val Val Asp Gly Asn Ser
195         200         205
Thr Thr Phe Glu His Gln Gln Pro Leu Glu Asp Arg Met Phe Lys Phe
210         215         220
Glu Leu Thr Lys Arg Leu Pro Pro Asp Phe Gly Lys Ile Thr Lys Gln
225         230         235         240
Glu Val Lys Asp Phe Phe Ala Trp Ala Lys Val Asn Gln Val Pro Val
245         250         255

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Thr His Glu Phe Lys Val Pro Arg Glu Leu Ala Gly Thr Lys Gly Ala
      260                      265                      270
Glu Lys Ser Leu Lys Arg Pro Leu Gly Asp Val Thr Asn Thr Ser Tyr
      275                      280                      285
Lys Ser Leu Glu Lys Arg Ala Arg Leu Ser Phe Val Pro Glu Thr Pro
      290                      295                      300
Arg Ser Ser Asp Val Thr Val Asp Pro Ala Pro Leu Arg Pro Leu Asn
305                      310                      315                      320
Trp Asn Ser Arg Tyr Asp Cys Lys Cys Asp Tyr His Ala Gln Phe Asp
      325                      330                      335
Asn Ile Ser Asn Lys Cys Asp Glu Cys Glu Tyr Leu Asn Arg Gly Lys
      340                      345                      350
Asn Gly Cys Ile Cys His Asn Val Thr His Cys Gln Ile Cys His Gly
      355                      360                      365
Ile Pro Pro Trp Glu Lys Glu Asn Leu Ser Asp Phe Gly Asp Phe Asp
      370                      375                      380
Asp Ala Asn Lys Glu Gln
385                      390

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<210> 3
<211> 610
<212> PRT
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence:/Note =
      synthetic construct

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<400> 3
Met Ala Thr Phe Tyr Glu Val Ile Val Arg Val Pro Phe Asp Val Glu
 1                      5                      10                      15
Glu His Leu Pro Gly Ile Ser Asp Ser Phe Val Asp Trp Val Thr Gly
      20                      25                      30
Gln Ile Trp Glu Leu Pro Pro Glu Ser Asp Leu Asn Leu Thr Leu Val
      35                      40                      45
Glu Gln Pro Gln Leu Thr Val Ala Asp Arg Ile Arg Arg Val Phe Leu
      50                      55                      60
Tyr Glu Trp Asn Lys Phe Ser Lys Gln Glu Ser Lys Phe Phe Val Gln
65                      70                      75                      80
Phe Glu Lys Gly Ser Glu Tyr Phe His Leu His Thr Leu Val Glu Thr
      85                      90                      95
Ser Gly Ile Ser Ser Met Val Leu Gly Arg Tyr Val Ser Gln Ile Arg
      100                      105                      110
Ala Gln Leu Val Lys Val Val Phe Gln Gly Ile Glu Pro Gln Ile Asn
      115                      120                      125
Asp Trp Val Ala Ile Thr Lys Val Lys Lys Gly Gly Ala Asn Lys Val
      130                      135                      140
Val Asp Ser Gly Tyr Ile Pro Ala Tyr Leu Leu Pro Lys Val Gln Pro
145                      150                      155                      160
Glu Leu Gln Trp Ala Trp Thr Asn Leu Asp Glu Tyr Lys Leu Ala Ala
      165                      170                      175

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Leu Asn Leu Glu Glu Arg Lys Arg Leu Val Ala Gln Phe Leu Ala Glu
 180 185 190
 Ser Ser Gln Arg Ser Gln Glu Ala Ala Ser Gln Arg Glu Phe Ser Ala
 195 200 205
 Asp Pro Val Ile Lys Ser Lys Thr Ser Gln Lys Tyr Met Ala Leu Val
 210 215 220
 Asn Trp Leu Val Glu His Gly Ile Thr Ser Glu Lys Gln Trp Ile Gln
 225 230 235 240
 Glu Asn Gln Glu Ser Tyr Leu Ser Phe Asn Ser Thr Gly Asn Ser Arg
 245 250 255
 Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Thr Lys Ile Met Ser Leu
 260 265 270
 Thr Lys Ser Ala Val Asp Tyr Leu Val Gly Ser Ser Val Pro Glu Asp
 275 280 285
 Ile Ser Lys Asn Arg Ile Trp Gln Ile Phe Glu Met Asn Gly Tyr Asp
 290 295 300
 Pro Ala Tyr Ala Gly Ser Ile Leu Tyr Gly Trp Cys Gln Arg Ser Phe
 305 310 315 320
 Asn Lys Arg Asn Thr Val Trp Leu Tyr Gly Pro Ala Thr Thr Gly Lys
 325 330 335
 Thr Asn Ile Ala Glu Ala Ile Ala His Thr Val Pro Phe Tyr Gly Cys
 340 345 350
 Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp Cys Val Asp Lys
 355 360 365
 Met Leu Ile Trp Trp Glu Glu Gly Lys Met Thr Asn Lys Val Val Glu
 370 375 380
 Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg Val Asp Gln Lys
 385 390 395 400
 Cys Lys Ser Ser Val Gln Ile Asp Ser Thr Pro Val Ile Val Thr Ser
 405 410 415
 Asn Thr Asn Met Cys Val Val Val Asp Gly Asn Ser Thr Thr Phe Glu
 420 425 430

 His Gln Gln Pro Leu Glu Asp Arg Met Phe Lys Phe Glu Leu Thr Lys
 435 440 445
 Arg Leu Pro Pro Asp Phe Gly Lys Ile Thr Lys Gln Glu Val Lys Asp
 450 455 460
 Phe Phe Ala Trp Ala Lys Val Asn Gln Val Pro Val Thr His Glu Phe
 465 470 475 480
 Lys Val Pro Arg Glu Leu Ala Gly Thr Lys Gly Ala Glu Lys Ser Leu
 485 490 495
 Lys Arg Pro Leu Gly Asp Val Thr Asn Thr Ser Tyr Lys Ser Leu Glu
 500 505 510
 Lys Arg Ala Arg Leu Ser Phe Val Pro Glu Thr Pro Arg Ser Ser Asp
 515 520 525
 Val Thr Val Asp Pro Ala Pro Leu Arg Pro Leu Asn Trp Asn Ser Arg
 530 535 540
 Tyr Asp Cys Lys Cys Asp Tyr His Ala Gln Phe Asp Asn Ile Ser Asn
 545 550 555 560
 Lys Cys Asp Glu Cys Glu Tyr Leu Asn Arg Gly Lys Asn Gly Cys Ile
 565 570 575

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ATTORNEY DOCKET NO. 14014.0323U3

Cys His Asn Val Thr His Cys Gln Ile Cys His Gly Ile Pro Pro Trp
 580 585 590
 Glu Lys Glu Asn Leu Ser Asp Phe Gly Asp Phe Asp Asp Ala Asn Lys
 595 600 605
 Glu Gln
 610

<210> 4
 <211> 724
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 synthetic construct

<400> 4
 Met Ser Phe Val Asp His Pro Pro Asp Trp Leu Glu Glu Val Gly Glu
 1 5 10 15
 Gly Leu Arg Glu Phe Leu Gly Leu Glu Ala Gly Pro Pro Lys Pro Lys
 20 25 30
 Pro Asn Gln Gln His Gln Asp Gln Ala Arg Gly Leu Val Leu Pro Gly
 35 40 45
 Tyr Asn Tyr Leu Gly Pro Gly Asn Gly Leu Asp Arg Gly Glu Pro Val
 50 55 60
 Asn Arg Ala Asp Glu Val Ala Arg Glu His Asp Ile Ser Tyr Asn Glu
 65 70 75 80
 Gln Leu Glu Ala Gly Asp Asn Pro Tyr Leu Lys Tyr Asn His Ala Asp
 85 90 95
 Ala Glu Phe Gln Glu Lys Leu Ala Asp Asp Thr Ser Phe Gly Gly Asn
 100 105 110
 Leu Gly Lys Ala Val Phe Gln Ala Lys Lys Arg Val Leu Glu Pro Phe
 115 120 125
 Gly Leu Val Glu Glu Gly Ala Lys Thr Ala Pro Thr Gly Lys Arg Ile
 130 135 140
 Asp Asp His Phe Pro Lys Arg Lys Lys Ala Arg Thr Glu Glu Asp Ser
 145 150 155 160
 Lys Pro Ser Thr Ser Ser Asp Ala Glu Ala Gly Pro Ser Gly Ser Gln
 165 170 175

 Gln Leu Gln Ile Pro Ala Gln Pro Ala Ser Ser Leu Gly Ala Asp Thr
 180 185 190
 Met Ser Ala Gly Gly Gly Gly Pro Leu Gly Asp Asn Asn Gln Gly Ala
 195 200 205
 Asp Gly Val Gly Asn Ala Ser Gly Asp Trp His Cys Asp Ser Thr Trp
 210 215 220
 Met Gly Asp Arg Val Val Thr Lys Ser Thr Arg Thr Trp Val Leu Pro
 225 230 235 240
 Ser Tyr Asn Asn His Gln Tyr Arg Glu Ile Lys Ser Gly Ser Val Asp
 245 250 255
 Gly Ser Asn Ala Asn Ala Tyr Phe Gly Tyr Ser Thr Pro Trp Gly Tyr

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Phe	Asp	Phe	Asn	Arg	Phe	His	Ser	His	Trp	Ser	Pro	Arg	Asp	Trp	Gln	
		275					280					285				
Arg	Leu	Ile	Asn	Asn	Tyr	Trp	Gly	Phe	Arg	Pro	Arg	Ser	Leu	Arg	Val	
	290					295				300						
Lys	Ile	Phe	Asn	Ile	Gln	Val	Lys	Glu	Val	Thr	Val	Gln	Asp	Ser	Thr	
305					310					315					320	
Thr	Thr	Ile	Ala	Asn	Asn	Leu	Thr	Ser	Thr	Val	Gln	Val	Phe	Thr	Asp	
				325					330					335		
Asp	Asp	Tyr	Gln	Leu	Pro	Tyr	Val	Val	Gly	Asn	Gly	Thr	Glu	Gly	Cys	
			340					345					350			
Leu	Pro	Ala	Phe	Pro	Pro	Gln	Val	Phe	Thr	Leu	Pro	Gln	Tyr	Gly	Tyr	
		355					360					365				
Ala	Thr	Leu	Asn	Arg	Asp	Asn	Thr	Glu	Asn	Pro	Thr	Glu	Arg	Ser	Ser	
	370					375					380					
Phe	Phe	Cys	Leu	Glu	Tyr	Phe	Pro	Ser	Lys	Met	Leu	Arg	Thr	Gly	Asn	
385					390					395					400	
Asn	Phe	Glu	Phe	Thr	Tyr	Asn	Phe	Glu	Glu	Val	Pro	Phe	His	Ser	Ser	
				405					410					415		
Phe	Ala	Pro	Ser	Gln	Asn	Leu	Phe	Lys	Leu	Ala	Asn	Pro	Leu	Val	Asp	
			420					425					430			
Gln	Tyr	Leu	Tyr	Arg	Phe	Val	Ser	Thr	Asn	Asn	Thr	Gly	Gly	Val	Gln	
		435					440					445				
Phe	Asn	Lys	Asn	Leu	Ala	Gly	Arg	Tyr	Ala	Asn	Thr	Tyr	Lys	Asn	Trp	
	450					455					460					
Phe	Pro	Gly	Pro	Met	Gly	Arg	Thr	Gln	Gly	Trp	Asn	Leu	Gly	Ser	Gly	
465					470					475					480	
Val	Asn	Arg	Ala	Ser	Val	Ser	Ala	Phe	Ala	Thr	Thr	Asn	Arg	Met	Glu	
				485					490					495		
Leu	Glu	Gly	Ala	Ser	Tyr	Gln	Val	Pro	Pro	Gln	Pro	Asn	Gly	Met	Thr	
			500					505					510			
Asn	Asn	Leu	Gln	Gly	Ser	Asn	Thr	Tyr	Ala	Leu	Glu	Asn	Thr	Met	Ile	
		515					520					525				
Phe	Asn	Ser	Gln	Pro	Ala	Asn	Pro	Gly	Thr	Thr	Ala	Thr	Tyr	Leu	Glu	
	530					535					540					
Gly	Asn	Met	Leu	Ile	Thr	Ser	Glu	Ser	Glu	Thr	Gln	Pro	Val	Asn	Arg	
545					550					555					560	
Val	Ala	Tyr	Asn	Val	Gly	Gly	Gln	Met	Ala	Thr	Asn	Asn	Gln	Ser	Ser	
				565					570					575		
Thr	Thr	Ala	Pro	Ala	Thr	Gly	Thr	Tyr	Asn	Leu	Gln	Glu	Ile	Val	Pro	
			580					585					590			

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Trp Glu Leu Lys Lys Glu Asn Ser Lys Arg Trp Asn Pro Glu Ile Gln
 675 680 685
 Tyr Thr Asn Asn Tyr Asn Asp Pro Gln Phe Val Asp Phe Ala Pro Asp
 690 695 700
 Ser Thr Gly Glu Tyr Arg Thr Thr Arg Pro Ile Gly Thr Arg Tyr Leu
 705 710 715 720
 Thr Arg Pro Leu

<210> 5
 <211> 588
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 synthetic construct

<400> 5
 Thr Ala Pro Thr Gly Lys Arg Ile Asp Asp His Phe Pro Lys Arg Lys
 1 5 10 15
 Lys Ala Arg Thr Glu Glu Asp Ser Lys Pro Ser Thr Ser Ser Asp Ala
 20 25 30
 Glu Ala Gly Pro Ser Gly Ser Gln Gln Leu Gln Ile Pro Ala Gln Pro
 35 40 45
 Ala Ser Ser Leu Gly Ala Asp Thr Met Ser Ala Gly Gly Gly Gly Pro
 50 55 60
 Leu Gly Asp Asn Asn Gln Gly Ala Asp Gly Val Gly Asn Ala Ser Gly
 65 70 75 80
 Asp Trp His Cys Asp Ser Thr Trp Met Gly Asp Arg Val Val Thr Lys
 85 90 95
 Ser Thr Arg Thr Trp Val Leu Pro Ser Tyr Asn Asn His Gln Tyr Arg
 100 105 110
 Glu Ile Lys Ser Gly Ser Val Asp Gly Ser Asn Ala Asn Ala Tyr Phe
 115 120 125
 Gly Tyr Ser Thr Pro Trp Gly Tyr Phe Asp Phe Asn Arg Phe His Ser
 130 135 140
 His Trp Ser Pro Arg Asp Trp Gln Arg Leu Ile Asn Asn Tyr Trp Gly
 145 150 155 160
 Phe Arg Pro Arg Ser Leu Arg Val Lys Ile Phe Asn Ile Gln Val Lys
 165 170 175
 Glu Val Thr Val Gln Asp Ser Thr Thr Thr Ile Ala Asn Asn Leu Thr
 180 185 190
 Ser Thr Val Gln Val Phe Thr Asp Asp Tyr Gln Leu Pro Tyr Val
 195 200 205
 Val Gly Asn Gly Thr Glu Gly Cys Leu Pro Ala Phe Pro Pro Gln Val
 210 215 220
 Phe Thr Leu Pro Gln Tyr Gly Tyr Ala Thr Leu Asn Arg Asp Asn Thr
 225 230 235 240
 Glu Asn Pro Thr Glu Arg Ser Ser Phe Phe Cys Leu Glu Tyr Phe Pro
 245 250 255

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Ser Lys Met Leu Arg Thr Gly Asn Asn Phe Glu Phe Thr Tyr Asn Phe
 260 265 270
 Glu Glu Val Pro Phe His Ser Ser Phe Ala Pro Ser Gln Asn Leu Phe
 275 280 285
 Lys Leu Ala Asn Pro Leu Val Asp Gln Tyr Leu Tyr Arg Phe Val Ser
 290 295 300
 Thr Asn Asn Thr Gly Gly Val Gln Phe Asn Lys Asn Leu Ala Gly Arg
 305 310 315 320
 Tyr Ala Asn Thr Tyr Lys Asn Trp Phe Pro Gly Pro Met Gly Arg Thr
 325 330 335
 Gln Gly Trp Asn Leu Gly Ser Gly Val Asn Arg Ala Ser Val Ser Ala
 340 345 350
 Phe Ala Thr Thr Asn Arg Met Glu Leu Glu Gly Ala Ser Tyr Gln Val
 355 360 365
 Pro Pro Gln Pro Asn Gly Met Thr Asn Asn Leu Gln Gly Ser Asn Thr
 370 375 380
 Tyr Ala Leu Glu Asn Thr Met Ile Phe Asn Ser Gln Pro Ala Asn Pro
 385 390 395 400
 Gly Thr Thr Ala Thr Tyr Leu Glu Gly Asn Met Leu Ile Thr Ser Glu
 405 410 415
 Ser Glu Thr Gln Pro Val Asn Arg Val Ala Tyr Asn Val Gly Gly Gln
 420 425 430
 Met Ala Thr Asn Asn Gln Ser Ser Thr Thr Ala Pro Ala Thr Gly Thr
 435 440 445
 Tyr Asn Leu Gln Glu Ile Val Pro Gly Ser Val Trp Met Glu Arg Asp
 450 455 460
 Val Tyr Leu Gln Gly Pro Ile Trp Ala Lys Ile Pro Glu Thr Gly Ala
 465 470 475 480
 His Phe His Pro Ser Pro Ala Met Gly Gly Phe Gly Leu Lys His Pro
 485 490 495
 Pro Pro Met Met Leu Ile Lys Asn Thr Pro Val Pro Gly Asn Ile Thr
 500 505 510
 Ser Phe Ser Asp Val Pro Val Ser Ser Phe Ile Thr Gln Tyr Ser Thr
 515 520 525
 Gly Gln Val Thr Val Glu Met Glu Trp Glu Leu Lys Lys Glu Asn Ser
 530 535 540
 Lys Arg Trp Asn Pro Glu Ile Gln Tyr Thr Asn Asn Tyr Asn Asp Pro
 545 550 555 560
 Gln Phe Val Asp Phe Ala Pro Asp Ser Thr Gly Glu Tyr Arg Thr Thr
 565 570 575
 Arg Pro Ile Gly Thr Arg Tyr Leu Thr Arg Pro Leu
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<210> 6

<211> 532

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =

09717789-112100

synthetic construct

<400> 6

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Asp	Gly	Val	Gly	Asn	Ala	Ser	Gly	Asp	Trp	His	Cys	Asp	Ser	Thr	Trp
			20					25					30		
Met	Gly	Asp	Arg	Val	Val	Thr	Lys	Ser	Thr	Arg	Thr	Trp	Val	Leu	Pro
		35					40					45			
Ser	Tyr	Asn	Asn	His	Gln	Tyr	Arg	Glu	Ile	Lys	Ser	Gly	Ser	Val	Asp
	50					55					60				
Gly	Ser	Asn	Ala	Asn	Ala	Tyr	Phe	Gly	Tyr	Ser	Thr	Pro	Trp	Gly	Tyr
65					70					75					80
Phe	Asp	Phe	Asn	Arg	Phe	His	Ser	His	Trp	Ser	Pro	Arg	Asp	Trp	Gln
				85					90					95	
Arg	Leu	Ile	Asn	Asn	Tyr	Trp	Gly	Phe	Arg	Pro	Arg	Ser	Leu	Arg	Val
			100					105					110		
Lys	Ile	Phe	Asn	Ile	Gln	Val	Lys	Glu	Val	Thr	Val	Gln	Asp	Ser	Thr
	115						120					125			
Thr	Thr	Ile	Ala	Asn	Asn	Leu	Thr	Ser	Thr	Val	Gln	Val	Phe	Thr	Asp
	130					135					140				
Asp	Asp	Tyr	Gln	Leu	Pro	Tyr	Val	Val	Gly	Asn	Gly	Thr	Glu	Gly	Cys
145					150					155					160
Leu	Pro	Ala	Phe	Pro	Pro	Gln	Val	Phe	Thr	Leu	Pro	Gln	Tyr	Gly	Tyr
				165					170					175	
Ala	Thr	Leu	Asn	Arg	Asp	Asn	Thr	Glu	Asn	Pro	Thr	Glu	Arg	Ser	Ser
			180					185					190		
Phe	Phe	Cys	Leu	Glu	Tyr	Phe	Pro	Ser	Lys	Met	Leu	Arg	Thr	Gly	Asn
		195					200					205			
Asn	Phe	Glu	Phe	Thr	Tyr	Asn	Phe	Glu	Glu	Val	Pro	Phe	His	Ser	Ser
	210					215					220				
Phe	Ala	Pro	Ser	Gln	Asn	Leu	Phe	Lys	Leu	Ala	Asn	Pro	Leu	Val	Asp
225					230					235					240
Gln	Tyr	Leu	Tyr	Arg	Phe	Val	Ser	Thr	Asn	Asn	Thr	Gly	Gly	Val	Gln
				245					250					255	
Phe	Asn	Lys	Asn	Leu	Ala	Gly	Arg	Tyr	Ala	Asn	Thr	Tyr	Lys	Asn	Trp
			260					265					270		
Phe	Pro	Gly	Pro	Met	Gly	Arg	Thr	Gln	Gly	Trp	Asn	Leu	Gly	Ser	Gly
		275					280					285			
Val	Asn	Arg	Ala	Ser	Val	Ser	Ala	Phe	Ala	Thr	Thr	Asn	Arg	Met	Glu
	290					295					300				
Leu	Glu	Gly	Ala	Ser	Tyr	Gln	Val	Pro	Pro	Gln	Pro	Asn	Gly	Met	Thr
305					310					315					320
Asn	Asn	Leu	Gln	Gly	Ser	Asn	Thr	Tyr	Ala	Leu	Glu	Asn	Thr	Met	Ile
				325					330					335	
Phe	Asn	Ser	Gln	Pro	Ala	Asn	Pro	Gly	Thr	Thr	Ala	Thr	Tyr	Leu	Glu
			340					345					350		
Gly	Asn	Met	Leu	Ile	Thr	Ser	Glu	Ser	Glu	Thr	Gln	Pro	Val	Asn	Arg
		355					360					365			
Val	Ala	Tyr	Asn	Val	Gly	Gly	Gln	Met	Ala	Thr	Asn	Asn	Gln	Ser	Ser

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370 375 380
 Thr Thr Ala Pro Ala Thr Gly Thr Tyr Asn Leu Gln Glu Ile Val Pro
 385 390 395 400
 Gly Ser Val Trp Met Glu Arg Asp Val Tyr Leu Gln Gly Pro Ile Trp
 405 410 415
 Ala Lys Ile Pro Glu Thr Gly Ala His Phe His Pro Ser Pro Ala Met
 420 425 430
 Gly Gly Phe Gly Leu Lys His Pro Pro Pro Met Met Leu Ile Lys Asn
 435 440 445
 Thr Pro Val Pro Gly Asn Ile Thr Ser Phe Ser Asp Val Pro Val Ser
 450 455 460
 Ser Phe Ile Thr Gln Tyr Ser Thr Gly Gln Val Thr Val Glu Met Glu
 465 470 475 480
 Trp Glu Leu Lys Lys Glu Asn Ser Lys Arg Trp Asn Pro Glu Ile Gln
 485 490 495
 Tyr Thr Asn Asn Tyr Asn Asp Pro Gln Phe Val Asp Phe Ala Pro Asp
 500 505 510
 Ser Thr Gly Glu Tyr Arg Thr Thr Arg Pro Ile Gly Thr Arg Tyr Leu
 515 520 525
 Thr Arg Pro Leu
 530

<210> 7

<211> 2307

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 7

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accctccaga	ttgggttgaa	gaagttggtg	aaggtcttcg	cgagtttttg	ggccttgaag	180
cgggcccacc	gaaacccaaa	ccaatcagc	agcatcaaga	tcaagcccgt	ggtcttgtgc	240
tgcttggtta	taactatctc	ggacccggaa	acggtctcga	tgcaggagag	cctgtcaaca	300
gggcagacga	ggtcgcgcga	gagcacgcga	tctcgtacaa	cgagcagctt	gaggcgggag	360
acaaccccta	cctcaagtac	aaccacgcgg	acgccgagtt	tcaggagaag	ctcgccgacg	420
acacatcctt	cgggggaaac	ctcggaaagg	cagtctttca	ggccaagaaa	agggttctcg	480
aaccttttgg	cctggttgaa	gagggtgcta	agacggcccc	taccggaaaag	cggatagacg	540
accactttcc	aaaaagaaaag	aaggctcggg	ccgaagagga	ctccaagcct	tccacctcgt	600
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agtaccgaga	gatcaaaaag	ggctccgtcg	acggaagcaa	cgccaacgcc	tactttggat	900
acagcaccct	ctgggggtac	tttgacttta	accgcttcca	cagccactgg	agcccccgag	960
actggcaaa	actcatcaac	aactactggg	gcttcagacc	ccggtccctc	agagtcaaaa	1020
tcttcaacat	tcaagtcaaa	gaggtcacgg	tgcaggactc	caccaccacc	atcgccaaca	1080
acctcacctc	caccgtccaa	gtgtttacgg	acgacgacta	ccagctgccc	tacgtcgtcg	1140

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tctgcctaga	gtactttccc	agcaagatgc	tgagaacggg	caacaacttt	gagtttacct	1320
acaactttga	ggaggtgccc	ttccactcca	gcttcgctcc	cagtcagaac	ctggtcaagc	1380
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gattcggact	caaacaccca	ccgcccata	tgctcatcaa	gaacacgcct	gtgcccggaa	2040
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ccggggaata	cagaaccacc	agacctatcg	gaacccgata	ccttacccca	cccctttaac	2280
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<210> 8

<211> 2264

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 8

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gtttttgggc	cttgaagcgg	gccaccgaa	acaaaaacc	aatcagcagc	atcaagatca	180
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cccagcccaa	ccagcctcaa	gtttgggagc	tgatacaatg	tctgcgggag	gtggcgggcc	660
attgggcgac	aataaccaag	gtgccgatgg	agtgggcaat	gcctcgggag	attggcattg	720
cgattccacg	tggatggggg	acagagtcgt	caccaagtcc	acccgaacct	gggtgtgtgc	780
cagctacaac	aaccaccagt	accgagagat	caaaagcggc	tccgtcgacg	gaagcaacgc	840
caacgcctac	tttgatata	gcacccctcg	ggggtaacttt	gactttaacc	gcttccacag	900
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gtccctcaga	gtcaaaaatct	tcaacattca	agtcaagagag	gtcacgggtgc	aggactccac	1020
caccaccatc	gccaaacaac	tcacctccac	cgtccaagtgc	tttacggacg	acgactacca	1080
gctgccttac	gtcgtcggca	acgggaccga	gggatgcctg	ccggccttcc	ctccgcaggt	1140
ctttacgctg	ccgcagtagc	gttacgcgac	gctgaaccgc	gacaacacag	aaaatccccc	1200

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tcagaacctg	ttcaagctgg	ccaacccgct	ggtggaccag	tacttgtagc	gcttcgtgag	1380
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ctacaaaaac	tggttcccgg	ggcccatggg	ccgaaccag	ggctggaacc	tgggctccgg	1500
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ccagtacagc	accgggagag	tcaccgtgga	gatggagtgg	gagctcaaga	aggaaaactc	2100
caagaggtgg	aaccagagag	tccagtacac	aaacaactac	aacgaccccc	agtttgtgga	2160
ctttgccccg	gacagcaccg	gggaatacag	aaccaccaga	cctatcgga	cccgatacct	2220
taccgaccc	ctttaacca	ttcatgtcgc	ataccctcaa	taaa		2264

<210> 9

<211> 2264

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 9

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gtttttgggc	cttgaagcgg	gccaccgaa	acaaaaacc	aatcagcagc	atcaagatca	180
agcccgtggt	cttgtgctgc	ctggttataa	ctatctcgga	cccggaaacg	gtctcgatcg	240
aggagagcct	gtcaacaggg	cagacgaggt	cgcgcgagag	cacgacatct	cgtacaacga	300
gcagcttgag	gcgggagaca	acccctacct	caagtacaac	cacgcggacg	ccgagtttca	360
ggagaagctc	gccgacgaca	catccttcgg	gggaaacctc	ggaaaggcag	tctttcaggc	420
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cccagcccaa	ccagcctcaa	gtttgggagc	tgatacaatg	tctgcgggag	gtggcggccc	660
attgggcgac	aataaccaag	gtgccgatgg	agtgggcaat	gcctcgggag	attggcattg	720
cgattccacg	tggatggggg	acagagtcgt	caccaagtcc	acccgaacct	gggtgctgcc	780
cagctacaac	aaccaccagt	accgagagat	caaaagcggc	tccgtcgacg	gaagcaacgc	840
caacgcctac	tttgatata	gcacccctg	ggggtacttt	gactttaacc	gcttcacag	900
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gtccctcaga	gtcaaaatct	tcaacattca	agtcaaagag	gtcacggtgc	aggactccac	1020
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cgagaggagc	agcttcttct	gcctagagta	ctttcccagc	aagatgctga	gaacgggcaa	1260
caactttgag	tttacctaca	actttgagga	ggtgcccttc	cactccagct	tcgctcccag	1320

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tcagaacctg	ttcaagctgg	ccaacccgct	ggtggaccag	tacttgtacc	gcttcgtgag	1380
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ccagtacagc	accgggcagg	tcaccgtgga	gatggagtgg	gagctcaaga	aggaaaactc	2100
caagaggtgg	aaccagagag	tccagtacac	aaacaactac	aacgaccccc	agtttgtgga	2160
ctttgccccg	gacagcaccg	gggaatacag	aaccaccaga	cctatcgga	cccgatacct	2220
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<210> 10

<211> 1292

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 10

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tggcgctcgt	caactggctc	gtggagcacg	gcataccttc	cgagaagcag	tggatccagg	180
aaaatcagga	gagctacctc	tccttcaact	ccaccggcaa	ctctcggagc	cagatcaagg	240
ccgcgctcga	caacgcgacc	aaaattatga	gtctgacaaa	aagcgcggtg	gactacctcg	300
tggggagctc	cgttcccag	gacatttcaa	aaaacagaat	ctggcaaatt	tttgagatga	360
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aggccatcgc	ccacactgtg	ccctttttacg	gctgcgtgaa	ctggaccaat	gaaaactttc	540
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aggtggttga	atccgccaaag	gccatccttg	ggggctcaaa	ggtgcgggtc	gatcagaaat	660
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aagtcaagga	cttttttgct	tgggcaaagg	tcaatcaggt	gccggtgact	cacgagttta	900
aagttcccg	ggaattggcg	ggaactaaag	gggcggagaa	atctctaaaa	cgcccactgg	960
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ccgagacgcc	tcgcagttca	gacgtgactg	ttgatcccgc	tcctctgcga	ccgctcaatt	1080
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aatgtgatga	atgtgaatat	ttgaatcggg	gcaaaaatgg	atgtatctgt	cacaatgtaa	1200
ctcactgtca	aattttgtcat	gggattcccc	cctgggaaaa	ggaaaacttg	tcagattttg	1260
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<210> 11

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<211> 1870
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
 synthetic construct

<400> 11

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ctgggtaact	ggtcaaattt	gggagctgcc	tccagagtca	gatttaaatt	tgactctggt	180
tgaacagcct	cagttgacgg	tggctgatag	aattcgccgc	gtgttcctgt	acgagtggaa	240
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tcactcgcac	acgcttggtg	agacctccgg	catctcttcc	atggtcctcg	gccgctacgt	360
gagtcagatt	cgcgcgccagc	tggtgaaagt	ggtcttccag	ggaattgaac	cccagatcaa	420
cgactgggtc	gccatcacca	aggtaaagaa	gggcggagcc	aataagggtg	tggattctgg	480
gtatattccc	gcctacctgc	tgccgaaggt	ccaaccggag	cttcagtggg	cgtggacaaa	540
cctggacgag	tataaattgg	ccgccctgaa	tctggaggag	cgcaaaccgc	tcgtcgcgca	600
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tgaccgggtc	atcaaaaagca	agacttccca	gaaatacatg	gcgctcgtca	actggctcgt	720
ggagcacggc	atcacttccg	agaagcagtg	gatccaggaa	aatcaggaga	gctacctctc	780
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catttcaaaa	aacagaatct	ggcaaat	tgagatgaat	ggctacgacc	cggcctacgc	960
gggatccatc	ctctacggct	ggtgtcagcg	ctccttcaac	aagaggaaca	ccgtctgggt	1020
ctacggaccc	gccacgaccg	gcaagaccaa	catcgcgagg	gccatcgccc	acactgtgcc	1080
cttttacggc	tgcgtgaact	ggaccaatga	aaactttccc	tttaatgact	gtgtggacaa	1140
aatgctcatt	tgggtgggag	agggaaagat	gaccaacaag	gtgggtgaat	ccgccaaagg	1200
catcctgggg	ggctcaaagg	tgcgggtcga	tcagaaatgt	aaatcctctg	ttcaaattga	1260
ttctaccctt	gtcattgtaa	cttccaatac	aaacatgtgt	gtgggtgggtg	atgggaattc	1320
cacgaccttt	gaacaccagc	agccgctgga	ggaccgcatg	ttcaaatttg	aactgactaa	1380
gcggctcccc	ccagattttg	gcaagattac	taagcaggaa	gtcaaggact	tttttgcttg	1440
ggcaaaggtc	aatcaggtgc	cggtgactca	cgagttaaaa	gttcccaggg	aattggcggg	1500
aactaaaggg	gcggagaaat	ctctaaaacg	cccactgggt	gacgtcacca	atactagcta	1560
taaaagtctg	gagaagcggg	ccaggctctc	atgtgttccc	gagacgcctc	gcagttcaga	1620
cgtgactggt	gatcccgcctc	ctctgcgacc	gctcaattgg	aattcaagg	atgattgcaa	1680
atgtgactat	catgctcaat	ttgacaacat	ttctaacaaa	tgtgatgaat	gtgaatat	1740
gaatcggggc	aaaaatggat	gtatctgtca	caatgtaact	cactgtcaaa	tttgtcatgg	1800
gattcccccc	tgggaaaagg	aaaacttgct	agattttggg	gattttgacg	atgccataa	1860
agaacagtaa						1870

<210> 12
 <211> 330
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
 synthetic construct

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<400> 12

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1				5					10					15	
Gln	Trp	Ile	Gln	Glu	Asn	Gln	Glu	Ser	Tyr	Leu	Ser	Phe	Asn	Ser	Thr
			20					25					30		
Gly	Asn	Ser	Arg	Ser	Gln	Ile	Lys	Ala	Ala	Leu	Asp	Asn	Ala	Thr	Lys
		35					40					45			
Ile	Met	Ser	Leu	Thr	Lys	Ser	Ala	Val	Asp	Tyr	Leu	Val	Gly	Ser	Ser
	50					55					60				
Val	Pro	Glu	Asp	Ile	Ser	Lys	Asn	Arg	Ile	Trp	Gln	Ile	Phe	Glu	Met
65					70					75				80	
Asn	Gly	Tyr	Asp	Pro	Ala	Tyr	Ala	Gly	Ser	Ile	Leu	Tyr	Gly	Trp	Cys
				85					90					95	
Gln	Arg	Ser	Phe	Asn	Lys	Arg	Asn	Thr	Val	Trp	Leu	Tyr	Gly	Pro	Ala
			100					105					110		
Thr	Thr	Gly	Lys	Thr	Asn	Ile	Ala	Glu	Ala	Ile	Ala	His	Thr	Val	Pro
		115					120					125			
Phe	Tyr	Gly	Cys	Val	Asn	Trp	Thr	Asn	Glu	Asn	Phe	Pro	Phe	Asn	Asp
	130					135					140				
Cys	Val	Asp	Lys	Met	Leu	Ile	Trp	Trp	Glu	Glu	Gly	Lys	Met	Thr	Asn
145					150					155				160	
Lys	Val	Val	Glu	Ser	Ala	Lys	Ala	Ile	Leu	Gly	Gly	Ser	Lys	Val	Arg
				165					170					175	
Val	Asp	Gln	Lys	Cys	Lys	Ser	Ser	Val	Gln	Ile	Asp	Ser	Thr	Pro	Val
			180					185					190		
Ile	Val	Thr	Ser	Asn	Thr	Asn	Met	Cys	Val	Val	Val	Asp	Gly	Asn	Ser
		195					200					205			
Thr	Thr	Phe	Glu	His	Gln	Gln	Pro	Leu	Glu	Asp	Arg	Met	Phe	Lys	Phe
	210					215					220				
Glu	Leu	Thr	Lys	Arg	Leu	Pro	Pro	Asp	Phe	Gly	Lys	Ile	Thr	Lys	Gln
225					230					235				240	
Glu	Val	Lys	Asp	Phe	Phe	Ala	Trp	Ala	Lys	Val	Asn	Gln	Val	Pro	Val
				245					250					255	
Thr	His	Glu	Phe	Lys	Val	Pro	Arg	Glu	Leu	Ala	Gly	Thr	Lys	Gly	Ala
			260					265					270		
Glu	Lys	Ser	Leu	Lys	Arg	Pro	Leu	Gly	Asp	Val	Thr	Asn	Thr	Ser	Tyr
		275					280					285			
Lys	Ser	Leu	Glu	Lys	Arg	Ala	Arg	Leu	Ser	Phe	Val	Pro	Glu	Thr	Pro
	290					295					300				
Arg	Ser	Ser	Asp	Val	Thr	Val	Asp	Pro	Ala	Pro	Leu	Arg	Pro	Leu	Asn
305					310					315				320	
Trp	Asn	Ser	Arg	Leu	Val	Gly	Arg	Ser	Trp						
				325					330						

<210> 13

<211> 1115

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =

00717789 112100

synthetic construct

<400> 13

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acatggcgct	cgtcaactgg	ctcgtggagc	acggcatcac	ttccgagaag	cagtggatcc	180
aggaaaatca	ggagagctac	ctctccttca	actccaccgg	caactctcgg	agccagatca	240
aggccgcgct	cgacaacgcg	accaaaaatta	tgagtctgac	aaaaagcgcg	gtggactacc	300
tcgtggggag	ctccgttccc	gaggacattt	caaaaaacag	aatctggcaa	atttttgaga	360
tgaatggcta	cgacccggcc	tacgcgggat	ccatcctcta	cggctgggtg	cagcgctcct	420
tcaacaagag	gaacaccgtc	tggctctacg	gacccgccac	gaccggcaag	accaacatcg	480
cggaggccat	cgcacacact	gtgccctttt	acggctgcgt	gaactggacc	aatgaaaact	540
ttccctttaa	tgactgtgtg	gacaaaatgc	tcatttggtg	ggaggaggga	aagatgacca	600
acaaggtggt	tgaatccgcc	aaggccatcc	tggggggctc	aaaggtgcgg	gtcgatcaga	660
aatgtaaate	ctctgttcaa	attgattcta	cccctgtcat	tgtaacttcc	aatacaaaaca	720
tgtgtgtggt	ggtggatggg	aattccacga	cctttgaaca	ccagcagccg	ctggaggacc	780
gcattgtcaa	atttgaactg	actaagcggc	tcccgccaga	ttttggcaag	attactaagc	840
aggaagtcaa	ggactttttt	gcttgggcaa	aggtcaatca	ggtgccgggtg	actcacgagt	900
ttaaagttcc	caggggaattg	gcgggaacta	aaggggcgga	gaaatctcta	aaacgcccac	960
tgggtgacgt	caccaatact	agctataaaa	gtctggagaa	gcggggccagg	ctctcatttg	1020
ttcccagac	gcctcgcagt	tcagacgtga	ctgttgatcc	cgctcctctg	cgaccgctca	1080
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<210> 14

<211> 550

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 14

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Glu	His	Leu	Pro	Gly	Ile	Ser	Asp	Ser	Phe	Val	Asp	Trp	Val	Thr	Gly
		20						25					30		
Gln	Ile	Trp	Glu	Leu	Pro	Pro	Glu	Ser	Asp	Leu	Asn	Leu	Thr	Leu	Val
		35					40					45			
Glu	Gln	Pro	Gln	Leu	Thr	Val	Ala	Asp	Arg	Ile	Arg	Arg	Val	Phe	Leu
	50					55					60				
Tyr	Glu	Trp	Asn	Lys	Phe	Ser	Lys	Gln	Glu	Ser	Lys	Phe	Phe	Val	Gln
65				70						75				80	
Phe	Glu	Lys	Gly	Ser	Glu	Tyr	Phe	His	Leu	His	Thr	Leu	Val	Glu	Thr
			85					90						95	
Ser	Gly	Ile	Ser	Ser	Met	Val	Leu	Gly	Arg	Tyr	Val	Ser	Gln	Ile	Arg
			100					105					110		
Ala	Gln	Leu	Val	Lys	Val	Val	Phe	Gln	Gly	Ile	Glu	Pro	Gln	Ile	Asn
		115						120					125		
Asp	Trp	Val	Ala	Ile	Thr	Lys	Val	Lys	Lys	Gly	Gly	Ala	Asn	Lys	Val
	130						135					140			

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Val 145	Asp	Ser	Gly	Tyr	Ile 150	Pro	Ala	Tyr	Leu	Leu 155	Pro	Lys	Val	Gln	Pro 160
Glu	Leu	Gln	Trp	Ala 165	Trp	Thr	Asn	Leu	Asp	Glu	Tyr	Lys	Leu	Ala	Ala 175
Leu	Asn	Leu	Glu	Glu	Arg	Lys	Arg	Leu	Val	Ala	Gln	Phe	Leu	Ala	Glu 180
Ser	Ser	Gln	Arg	Ser	Gln	Glu	Ala	Ala	Ser	Gln	Arg	Glu	Phe	Ser	Ala 195
Asp	Pro 210	Val	Ile	Lys	Ser	Lys 215	Thr	Ser	Gln	Lys	Tyr	Met	Ala	Leu	Val 220
Asn	Trp	Leu	Val	Glu	His 230	Gly	Ile	Thr	Ser	Glu	Lys	Gln	Trp	Ile	Gln 240
Glu	Asn	Gln	Glu	Ser	Tyr	Leu	Ser	Phe	Asn	Ser	Thr	Gly	Asn	Ser	Arg 250
Ser	Gln	Ile	Lys	Ala	Ala	Leu	Asp	Asn	Ala	Thr	Lys	Ile	Met	Ser	Leu 260
Thr	Lys	Ser	Ala	Val	Asp	Tyr	Leu	Val	Gly	Ser	Ser	Val	Pro	Glu	Asp 275
Ile	Ser	Lys	Asn	Arg	Ile	Trp	Gln	Ile	Phe	Glu	Met	Asn	Gly	Tyr	Asp 290
Pro 305	Ala	Tyr	Ala	Gly	Ser	Ile	Leu	Tyr	Gly	Trp	Cys	Gln	Arg	Ser	Phe 320
Asn	Lys	Arg	Asn	Thr	Val	Trp	Leu	Tyr	Gly	Pro	Ala	Thr	Thr	Gly	Lys 335
Thr	Asn	Ile	Ala	Glu	Ala	Ile	Ala	His	Thr	Val	Pro	Phe	Tyr	Gly	Cys 340
Val	Asn	Trp	Thr	Asn	Glu	Asn	Phe	Pro	Phe	Asn	Asp	Cys	Val	Asp	Lys 355
Met	Leu	Ile	Trp	Trp	Glu	Glu	Gly	Lys	Met	Thr	Asn	Lys	Val	Val	Glu 370
Ser 385	Ala	Lys	Ala	Ile	Leu	Gly	Gly	Ser	Lys	Val	Arg	Val	Asp	Gln	Lys 400
Cys	Lys	Ser	Ser	Val	Gln	Ile	Asp	Ser	Thr	Pro	Val	Ile	Val	Thr	Ser 415
Asn	Thr	Asn	Met	Cys	Val	Val	Val	Asp	Gly	Asn	Ser	Thr	Thr	Phe	Glu 420
His	Gln	Gln	Pro	Leu	Glu	Asp	Arg	Met	Phe	Lys	Phe	Glu	Leu	Thr	Lys 435
Arg	Leu	Pro	Pro	Asp	Phe	Gly	Lys	Ile	Thr	Lys	Gln	Glu	Val	Lys	Asp 450
Phe 465	Phe	Ala	Trp	Ala	Lys	Val	Asn	Gln	Val	Pro	Val	Thr	His	Glu	Phe 480
Lys	Val	Pro	Arg	Glu	Leu	Ala	Gly	Thr	Lys	Gly	Ala	Glu	Lys	Ser	Leu 495
Lys	Arg	Pro	Leu	Gly	Asp	Val	Thr	Asn	Thr	Ser	Tyr	Lys	Ser	Leu	Glu 510
Lys	Arg	Ala	Arg	Leu	Ser	Phe	Val	Pro	Glu	Thr	Pro	Arg	Ser	Ser	Asp 525
Val	Thr	Val	Asp	Pro	Ala	Pro	Leu	Arg	Pro	Leu	Asn	Trp	Asn	Ser	Arg 540

Leu Val Gly Arg Ser Trp
545 550

<210> 15
<211> 1690
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 15

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ctgggtaact	ggtcaaattt	gggagctgcc	tccagagtca	gatttaaatt	tgactctggt	180
tgaacagcct	cagttgacgg	tggctgatag	aattcgccgc	gtgttccgtg	acgagtggaa	240
caaattttcc	aagcaggagt	ccaaattctt	tgtgcagttt	gaaaagggat	ctgaatat	300
tcatctgcac	acgcttgtgg	agacctccgg	catctcttcc	atggtccctg	gccgctacgt	360
gagtcagatt	cgcgcccagc	tggtgaaagt	ggtcttccag	ggaattgaac	cccagatcaa	420
cgactggggtc	gccatcacca	aggtaaagaa	gggaggagcc	aataagggtg	tggattctgg	480
gtatattccc	gcctacctgc	tgccgaaggt	ccaaccggag	cttcagtggg	cgtggacaaa	540
cctggacgag	tataaattgg	ccgccctgaa	tctggaggag	cgcaaacggc	tcgtcgcgca	600
gtttctggca	gaatcctcgc	agcgctcgca	ggaggcggtc	tcgcagcggt	agttctcggc	660
tgacccggtc	atcaaaagca	agacttccca	gaaatacatg	gcgctcgtca	actggctcgt	720
ggagcacggc	atcacttccg	agaagcagtg	gatccaggaa	aatcaggaga	gctacctctc	780
cttcaactcc	accggcaact	ctcggagcca	gatcaaggcc	gcgctcgaca	acgcgaccaa	840
aattatgagt	ctgacaaaaa	gcgcggtgga	ctacctcggt	gggagctccg	ttcccaggga	900
cattttcaaaa	aacagaatct	ggcaaatttt	tgagatgaat	ggctacgacc	cggcctacgc	960
gggatccatc	ctctacggct	ggtgtcagcg	ctccttcaac	aagaggaaca	ccgtctggtc	1020
ctacggaccc	gccacgaccg	gcaagaccaa	catcgcgagg	gccatcgccc	acactgtgcc	1080
cttttacggc	tgctgtaact	ggaccaatga	aaactttccc	tttaatgact	gtgtggacaa	1140
aatgctcatt	tgggtgggag	agggaaagat	gaccaacaag	gtggttgaat	ccgccaaggc	1200
catcctgggg	ggctcaaagg	tgcggtcgca	tcagaaatgt	aaatcctctg	ttcaaattga	1260
ttctaccctt	gtcattgtaa	cttccaatac	aaacatgtgt	gtggtgggtg	atgggaattc	1320
cacgaccttt	gaacaccagc	agccgctgga	ggaccgcatg	ttcaaatttg	aactgactaa	1380
gcggctcccc	ccagattttg	gcaagattac	taagcaggaa	gtcaaggact	tttttgcttg	1440
ggcaaagggtc	aatcagggtg	cggtgactca	cgagtttaaa	gttcccaggg	aattggcggg	1500
aactaaagggt	gcggagaaat	ctctaaaacg	cccactgggt	gacgtcacca	atactagcta	1560
taaaagtctg	gagaagcggg	ccaggctctc	atttgttccc	gagacgcctc	gcagttcaga	1620
cgtgactgtt	gatcccgcct	ctctgcgacc	gctcaattgg	aattcaagat	tgggttgaag	1680
aagttggtga						1690

<210> 16
<211> 145
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/Note =
synthetic construct

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<400> 16
 ccatcaccaa ggtaaagaag ggcggagcca ataaggtggt ggattctggg tatattcccg 60
 cctacctgct gccgaagggt caaccggagc ttcagtgggc gtggacaaac ctggacgagt 120
 ataaattggc cgccctgaat ctgga 145

<210> 17
 <211> 174
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 synthetic construct

<400> 17
 taagcaggaa gtcaaggact tttttgcttg ggcaaagggt aatcagggtgc cggtgactca 60
 cgagtttaaa gttcccaggg aattggcggg aactaaaggg gcggagaaat ctctaaaacg 120
 cccactgggt gacgtcacca atactagcta taaaagtctg gagaagcggg ccag 174

<210> 18
 <211> 187
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 synthetic construct

<400> 18
 cactctcaag caaggggggt ttgtaagcag tgatgtcata atgatgtaat gcttattgtc 60
 acgcgatagt taatgattaa cagtcattgt atgtgtttta tccaatagga agaaagcgcg 120
 cgtatgagtt ctgcgagac ttccggggta taaaagaccg agtgaacgag cccgccgcca 180
 ttctttg 187

<210> 19
 <211> 168
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 synthetic construct

<400> 19
 aaacctcctt gcttgagagt gtggcactct cccccctgtc gcgttcgctc gctcgtcggc 60
 tcgtttgggg ggggtggcagc tcaaagagct gccagacgac ggccctctgg ccgtcgcccc 120
 cccaaacgag ccagcgagcg agcgaacgag acagggggga gagtgcca 168

<210> 20
 <211> 168
 <212> DNA

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<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 20

aaacctcctt gcttgagagt gtggcactct cccccctgtc gcgttcgctc gctcgcctggc	60
tcgtttgggg gggcgacggc cagagggccg tcgtctgccg gctctttgag ctgccacccc	120
cccaaacgag ccagcgagcg agcgaacgag acagggggga gaggcca	168

<210> 21

<211> 8

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 21

cggtgtga	8
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<210> 22

<211> 8

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 22

cggttgag	8
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<210> 23

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
synthetic construct

<400> 23

caaaacctcc ttgcttgaga g	21
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